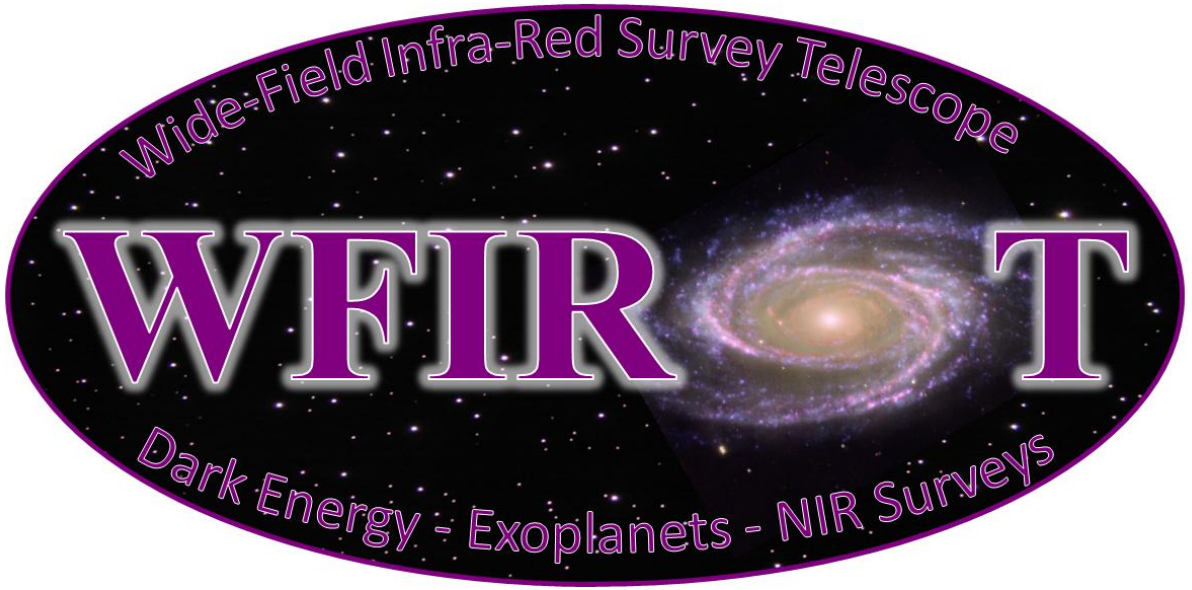

Project Overview

Kevin Grady

April 1, 2014

Study Team Overview (1 of 3)

- Budget: great news, FY14 budget augmented on March 5th.
  - Developing detailed plans and schedules for increased activity
  - Significant effort focused on upcoming budget submission
- Design cycle #4 nearing completion
  - Dave will discuss results
- Cycle #3 STOP analysis results and preliminary jitter assessment completed
  - Preliminary assessment of GEO thermal environment. Results favorable for widefield and coronagraph.
  - Early jitter results: initial results meet widefield requirements; the combination of observatory pointing and the coronagraph's LOWFS indicate a jitter level that enables coronagraphy
  - Much effort lies ahead.
- Initiated design and fabrication of key widefield opto-mechanical engineering hardware subassemblies.

Study Team Overview (2 of 3)

- Study charter requested assessment of 2.5 micron cutoff for widefield instrument
  - Telescope subassembly successfully cold tested last year
  - CTE and stress measurements of telescope coupons fabricated along with the original flight units are in process.
  - Cycle #4 examining impact of cryo-cooler to widefield; need to be established after HgCdTe detector recipe is selected and characterization tests performed.
- Developed coronagraph technology development plan; initiated mask fabrication for HCIT testing; working DRM
- Pointing simulation development
  - Closed loop simulation under development to assess pointing stability, slew and settle performance for widefield; fast steering mirror to be incorporated into model to provide assessment of coronagraph jitter performance.
- Requirements development
  - Several discussions on Level 1; will not be baselined now; framework for the level 2 effort for the remainder of this year.
  - Level 2 discussion later

Study Team Overview (3 of 3)

- Payload I&T calibration
  - Maturation of the payload integration approach planned for later this year.
- IR detectors
  - Banded array detectors have been fabricated and are now in test.
  - A few additional detectors in the first two process sub-lots remain for completion, with the third sub-lot close behind.
  - Performance testing of the detectors to continue this year.
  - Goal is to select a single recipe from the first two sub-lots this summer and another opportunity late this CY.
  - Will then fabricate full detector arrays.
- NRC Report Recommendations
  - Aggressively mature coronagraph design/technology and develop cost & schedule. Perform independent coronagraph review.
  - Perform an external technical & cost review.

AFTA - Wide-Field Infrared Survey Telescope

AFTA-WFIRST Study Schedule 2013 - 2014